Effects of enological tannins of different botanical origin on the phenolic composition and colour of Tannat red wines


Red wines are beverages rich in polyphenols, which determine colour (anthocyanins) and astringency (tannins). Besides they are important bioactive compounds with antioxidant properties. Tannins additions are cited to protect wine phenols from oxidation and to enhance anthocyanin-tannin aggregation increasing colour stability. The aim of this essay was to evaluate the effect of enological-tannin addition on phenolic composition and colour of wines, compared to traditional maceration (TM). Using 70 kg of grape per treatment, three alternatives of 200 mg/L tannin addition were tested by duplicate: grape-seeds tannin (TS), quebracho (Schinopsis sp.) tannin (TQ) (both added at encuvage) and seed tannins adding at devatting (TD). Four and eight months later, wine colour and phenolic families were analysed, as well as low-molecular weight phenols by HPLC (at eight months). After four months just TD showed more colour intensity (CI) than MT (not statistically), but after eight months all alternatives to MT had higher CI, particularly TD wines (6.62 vs 8.40 au). However they had statistically lower content of anthocyanin than MT (430 vs 395 mg/L) suggesting evolution toward more stable pigments. Total phenols and tannins were also higher in alternatives with tannins addition after eight months, with statistical higher content of some low-molecular-weight phenols like gallic-acid. Results suggest that tannins addition increases colour stability and phenolic composition of wines, especially when added at devatting. Since TD and TM where treated the same way during early maceration stages, when oxidations phenomena are prevalent, differences could be related with tannin-anthocyanins complexation rather than oxidative protection.